

0570
0404

#8



OIEP

RAW SEQUENCE LISTING

DATE: 04/08/2002

PATENT APPLICATION: US/09/866,557A

TIME: 15:45:41

Input Set : A:\GNCA-P02-007.txt

Output Set: N:\CRF3\04082002\I866557A.raw

ENTERED

3 <110> APPLICANT: Hammond, S.
4 Hannon, G.
5 Beach, D.
7 <120> TITLE OF INVENTION: METHODS AND COMPOSITIONS FOR RNA INTERFERENCE
9 <130> FILE REFERENCE: GNCA-P02-007
11 <140> CURRENT APPLICATION NUMBER: 09/866,557A
C--> 12 <141> CURRENT FILING DATE: 2002-03-26
14 <150> PRIOR APPLICATION NUMBER: 60/189,739
15 <151> PRIOR FILING DATE: 2000-03-16
17 <150> PRIOR APPLICATION NUMBER: 60/243,097
18 <151> PRIOR FILING DATE: 2000-10-24
20 <160> NUMBER OF SEQ ID NOS: 5
22 <170> SOFTWARE: PatentIn version 3.1
24 <210> SEQ ID NO: 1
25 <211> LENGTH: 5775
26 <212> TYPE: DNA
27 <213> ORGANISM: Homo sapiens
29 <220> FEATURE:
30 <221> NAME/KEY: CDS
31 <222> LOCATION: (1)..(5775)
32 <223> OTHER INFORMATION:
34 <400> SEQUENCE: 1
35 atg aaa agc cct gct ttg caa ccc ctc agc atg gca ggc ctg cag ctc 48
36 Met Lys Ser Pro Ala Leu Gln Pro Leu Ser Met Ala Gly Leu Gln Leu
37 1 5 10 15
38 atg acc cct gct tcc tca cca atg ggt cct ttc ttt gga ctg cca tgg 96
39 Met Thr Pro Ala Ser Ser Pro Met Gly Pro Phe Phe Gly Leu Pro Trp
40 20 25 30
41 caa caa gaa gca att cat gat aac att tat acg cca aga aaa tat cag 144
42 Gln Gln Glu Ala Ile His Asp Asn Ile Tyr Thr Pro Arg Lys Tyr Gln
43 35 40 45
44 gtt gaa ctg ctt gaa gca gct ctg gat cat aat acc atc gtc tgt tta 192
45 Val Glu Leu Leu Glu Ala Ala Leu Asp His Asn Thr Ile Val Cys Leu
46 50 55 60
47 aac act ggc tca ggg aag aca ttt att gct agt act act cta cta aag 240
48 Asn Thr Gly Ser Gly Lys Thr Phe Ile Ala Ser Thr Thr Leu Leu Lys
49 65 70 75 80
50 agc tgt ctc tat cta gat cta ggg gag act tca gct aga aat gga aaa 288
51 Ser Cys Leu Tyr Leu Asp Leu Gly Glu Thr Ser Ala Arg Asn Gly Lys
52 85 90 95
53 agg acg gtg ttc ttg gtc aac tct gca aac cag gtt gct caa caa gtg 336
54 Arg Thr Val Phe Leu Val Asn Ser Ala Asn Gln Val Ala Gln Gln Val
55 100 105 110

RAW SEQUENCE LISTING

DATE: 04/08/2002

PATENT APPLICATION: US/09/866,557A

TIME: 15:45:41

Input Set : A:\GNCA-P02-007.txt

Output Set: N:\CRF3\04082002\I866557A.raw

56	tca gct gtc aga act cat tca gat ctc aag gtt ggg gaa tac tca aac	384
57	Ser Ala Val Arg Thr His Ser Asp Leu Lys Val Gly Glu Tyr Ser Asn	
58	115 120 125	
59	cta gaa gta aat gca tct tgg aca aaa gag aga tgg aac caa gag ttt	432
60	Leu Glu Val Asn Ala Ser Trp Thr Lys Glu Arg Trp Asn Gln Glu Phe	
61	130 135 140	
62	act aag cac cag gtt ctc att atg act tgc tat gtc gcc ttg aat gtt	480
63	Thr Lys His Gln Val Leu Ile Met Thr Cys Tyr Val Ala Leu Asn Val	
64	145 150 155 160	
65	ttg aaa aat ggt tac tta tca ctg tca gac att aac ctt ttg gtg ttt	528
66	Leu Lys Asn Gly Tyr Leu Ser Leu Ser Asp Ile Asn Leu Leu Val Phe	
67	165 170 175	
68	gat gag tgt cat ctt gca atc cta gac cac ccc tat cga gaa ttt atg	576
69	Asp Glu Cys His Leu Ala Ile Leu Asp His Pro Tyr Arg Glu Phe Met	
70	180 185 190	
71	aag ctc tgt gaa att tgt cca tca tgt cct cgc att ttg gga cta act	624
72	Lys Leu Cys Glu Ile Cys Pro Ser Cys Pro Arg Ile Leu Gly Leu Thr	
73	195 200 205	
74	gct tcc att tta aat ggg aaa tgg gat cca gag gat ttg gaa gaa aag	672
75	Ala Ser Ile Leu Asn Gly Lys Trp Asp Pro Glu Asp Leu Glu Glu Lys	
76	210 215 220	
77	ttt cag aaa cta gag aaa att ctt aag agt aat gct gaa act gca act	720
78	Phe Gln Lys Leu Glu Lys Ile Leu Lys Ser Asn Ala Glu Thr Ala Thr	
79	225 230 235 240	
80	gac ctg gtg gtc tta gac agg tat act tct cag cca tgt gag att gtg	768
81	Asp Leu Val Val Leu Asp Arg Tyr Thr Ser Gln Pro Cys Glu Ile Val	
82	245 250 255	
83	gtg gat tgt gga cca ttt act gac aga agt ggg ctt tat gaa aga ctg	816
84	Val Asp Cys Gly Pro Phe Thr Asp Arg Ser Gly Leu Tyr Glu Arg Leu	
85	260 265 270	
86	ctg atg gaa tta gaa gaa gca ctt aat ttt atc aat gat tgt aat ata	864
87	Leu Met Glu Leu Glu Glu Ala Leu Asn Phe Ile Asn Asp Cys Asn Ile	
88	275 280 285	
89	tct gta cat tca aaa gaa aga gat tct act tta att tcg aaa cag ata	912
90	Ser Val His Ser Lys Glu Arg Asp Ser Thr Leu Ile Ser Lys Gln Ile	
91	290 295 300	
92	cta tca gac tgt cgt gcc gta ttg gta gtt ctg gga ccc tgg tgt gca	960
93	Leu Ser Asp Cys Arg Ala Val Leu Val Val Leu Gly Pro Trp Cys Ala	
94	305 310 315 320	
95	gat aaa gta gct gga atg atg gta aga gaa cta cag aaa tac atc aaa	1008
96	Asp Lys Val Ala Gly Met Met Val Arg Glu Leu Gln Lys Tyr Ile Lys	
97	325 330 335	
98	cat gag caa gag gag ctg cac agg aaa ttt tta ttg ttt aca gac act	1056
99	His Glu Gln Glu Glu Leu His Arg Lys Phe Leu Leu Phe Thr Asp Thr	
100	340 345 350	
101	ttc cta agg aaa ata cat gca cta tgt gaa gag cac ttc tca cct gcc	1104
102	Phe Leu Arg Lys Ile His Ala Leu Cys Glu Glu His Phe Ser Pro Ala	
103	355 360 365	
104	tca ctt gac ctg aaa ttt gta act cct aaa gta atc aaa ctg ctc gaa	1152

RAW SEQUENCE LISTING

DATE: 04/08/2002

PATENT APPLICATION: US/09/866,557A

TIME: 15:45:41

Input Set : A:\GNCA-P02-007.txt

Output Set: N:\CRF3\04082002\I866557A.raw

105	Ser	Leu	Asp	Leu	Lys	Phe	Val	Thr	Pro	Lys	Val	Ile	Lys	Leu	Leu	Glu	
106		370					375					380					
107	atc	tta	cgc	aaa	tat	aaa	cca	tat	gag	cga	cac	agt	ttt	gaa	agc	gtt	1200
108	Ile	Leu	Arg	Lys	Tyr	Lys	Pro	Tyr	Glu	Arg	His	Ser	Phe	Glu	Ser	Val	
109	385					390					395					400	
110	gag	tgg	tat	aat	aat	aga	aat	cag	gat	aat	tat	gtg	tca	tgg	agt	gat	1248
111	Glu	Trp	Tyr	Asn	Asn	Arg	Asn	Gln	Asp	Asn	Tyr	Val	Ser	Trp	Ser	Asp	
112				405						410					415		
113	tct	gag	gat	gat	gat	gag	gat	gaa	gaa	att	gaa	gaa	aaa	gag	aag	cca	1296
114	Ser	Glu	Asp	Asp	Asp	Glu	Asp	Glu	Glu	Ile	Glu	Glu	Lys	Glu	Lys	Pro	
115				420					425					430			
116	gag	aca	aat	ttt	cct	tct	cct	ttt	acc	aac	att	ttg	tgc	gga	att	att	1344
117	Glu	Thr	Asn	Phe	Pro	Ser	Pro	Phe	Thr	Asn	Ile	Leu	Cys	Gly	Ile	Ile	
118			435					440					445				
119	ttt	gtg	gaa	aga	aga	tac	aca	gca	gtt	gtc	tta	aac	aga	ttg	ata	aag	1392
120	Phe	Val	Glu	Arg	Arg	Tyr	Thr	Ala	Val	Val	Leu	Asn	Arg	Leu	Ile	Lys	
121		450					455					460					
122	gaa	gct	ggc	aaa	caa	gat	cca	gag	ctg	gct	tat	atc	agt	agc	aat	ttc	1440
123	Glu	Ala	Gly	Lys	Gln	Asp	Pro	Glu	Leu	Ala	Tyr	Ile	Ser	Ser	Asn	Phe	
124	465				470					475					480		
125	ata	act	gga	cat	ggc	att	ggg	aag	aat	cag	cct	cgc	aac	aac	acg	atg	1488
126	Ile	Thr	Gly	His	Gly	Ile	Gly	Lys	Asn	Gln	Pro	Arg	Asn	Asn	Thr	Met	
127				485						490					495		
128	gaa	gca	gaa	ttc	aga	aaa	cag	gaa	gag	gta	ctt	agg	aaa	ttt	cga	gca	1536
129	Glu	Ala	Glu	Phe	Arg	Lys	Gln	Glu	Glu	Val	Leu	Arg	Lys	Phe	Arg	Ala	
130			500						505					510			
131	cat	gag	acc	aac	ctg	ctt	att	gca	aca	agt	att	gta	gaa	gag	ggt	gtt	1584
132	His	Glu	Thr	Asn	Leu	Leu	Ile	Ala	Thr	Ser	Ile	Val	Glu	Glu	Gly	Val	
133			515					520					525				
134	gat	ata	cca	aaa	tgc	aac	ttg	gtg	gtt	cgt	ttt	gat	ttg	ccc	aca	gaa	1632
135	Asp	Ile	Pro	Lys	Cys	Asn	Leu	Val	Val	Arg	Phe	Asp	Leu	Pro	Thr	Glu	
136		530				535					540						
137	tat	cga	tcc	tat	gtt	caa	tct	aaa	gga	aga	gca	agg	gca	ccc	atc	tct	1680
138	Tyr	Arg	Ser	Tyr	Val	Gln	Ser	Lys	Gly	Arg	Ala	Arg	Ala	Pro	Ile	Ser	
139	545				550					555					560		
140	aat	tat	ata	atg	tta	gcg	gat	aca	gac	aaa	ata	aaa	agt	ttt	gaa	gaa	1728
141	Asn	Tyr	Ile	Met	Leu	Ala	Asp	Thr	Asp	Lys	Ile	Lys	Ser	Phe	Glu	Glu	
142				565					570					575			
143	gac	ctt	aaa	acc	tac	aaa	gct	att	gaa	aag	atc	ttg	aga	aac	aag	tgt	1776
144	Asp	Leu	Lys	Thr	Tyr	Lys	Ala	Ile	Glu	Lys	Ile	Leu	Arg	Asn	Lys	Cys	
145			580						585					590			
146	tcc	aag	tcg	gtt	gat	act	ggt	gag	act	gac	att	gat	cct	gtc	atg	gat	1824
147	Ser	Lys	Ser	Val	Asp	Thr	Gly	Glu	Thr	Asp	Ile	Asp	Pro	Val	Met	Asp	
148			595					600					605				
149	gat	gat	cac	gtt	ttc	cca	cca	tat	gtg	ttg	agg	cct	gac	gat	ggt	ggt	1872
150	Asp	Asp	His	Val	Phe	Pro	Pro	Tyr	Val	Leu	Arg	Pro	Asp	Asp	Gly	Gly	
151		610				615					620						
152	cca	cga	gtc	aca	atc	aac	acg	gcc	att	gga	cac	atc	aat	aga	tac	tgt	1920
153	Pro	Arg	Val	Thr	Ile	Asn	Thr	Ala	Ile	Gly	His	Ile	Asn	Arg	Tyr	Cys	

RAW SEQUENCE LISTING

DATE: 04/08/2002

PATENT APPLICATION: US/09/866,557A

TIME: 15:45:41

Input Set : A:\GNCA-P02-007.txt

Output Set: N:\CRF3\04082002\I866557A.raw

154	625		630		635		640	
155	gct	aga	tta	cca	agt	gat	ccg	ttt
156	Ala	Arg	Leu	Pro	Ser	Asp	Pro	Phe
157								
158	acc	cga	gag	ttg	cct	gat	ggt	aca
159	Thr	Arg	Glu	Leu	Pro	Asp	Gly	Thr
160								
161	att	aac	tca	cct	ctt	cga	gcc	tcc
162	Ile	Asn	Ser	Pro	Leu	Arg	Ala	Ser
163								
164	gta	cga	ttg	gct	gaa	aga	gtt	gtc
165	Val	Arg	Leu	Ala	Glu	Arg	Val	Val
166								
167	cac	aaa	att	ggc	gaa	ctg	gat	gac
168	His	Lys	Ile	Gly	Glu	Leu	Asp	Asp
169	705							
170	act	gtt	aaa	tat	gaa	gag	gag	ctt
171	Thr	Val	Lys	Tyr	Glu	Glu	Glu	Leu
172								
173	agt	gtt	cca	gga	aga	cca	ggt	tcc
174	Ser	Val	Pro	Gly	Arg	Pro	Gly	Ser
175								
176	aaa	gca	att	cca	gag	tgt	ttg	agg
177	Lys	Ala	Ile	Pro	Glu	Cys	Leu	Arg
178								
179	ccc	tgt	tac	ctg	tat	gtg	ata	gga
180	Pro	Cys	Tyr	Leu	Tyr	Val	Ile	Gly
181								
182	gat	gaa	ctc	aac	ttt	aga	agg	cgg
183	Asp	Glu	Leu	Asn	Phe	Arg	Arg	Arg
184	785							
185	aca	aga	tgc	ttt	gga	ata	ctg	acg
186	Thr	Arg	Cys	Phe	Gly	Ile	Leu	Thr
187								
188	cac	ttt	cct	gtg	tac	aca	cgc	tct
189	His	Phe	Pro	Val	Tyr	Thr	Arg	Ser
190								
191	ttg	aag	aag	tct	ggt	ttc	atg	ttg
192	Leu	Lys	Lys	Ser	Gly	Phe	Met	Leu
193								
194	aca	aga	ctt	cac	cag	tat	ata	ttc
195	Thr	Arg	Leu	His	Gln	Tyr	Ile	Phe
196								
197	cct	gca	cta	gaa	ttt	aaa	cct	aca
198	Pro	Ala	Leu	Glu	Phe	Lys	Pro	Thr
199	865							
200	cta	cct	ctt	aat	gtt	gtt	aat	gac
201	Leu	Pro	Leu	Asn	Val	Val	Asn	Asp
202								

RAW SEQUENCE LISTING

DATE: 04/08/2002

PATENT APPLICATION: US/09/866,557A

TIME: 15:45:41

Input Set : A:\GNCA-P02-007.txt

Output Set: N:\CRF3\04082002\I866557A.raw

203	aaa ttc atg gaa gat att gag aag tct gaa gct cgc ata ggc att ccc	2736
204	Lys Phe Met Glu Asp Ile Glu Lys Ser Glu Ala Arg Ile Gly Ile Pro	
205	900 905 910	
206	agt aca aag tat aca aaa gaa aca ccc ttt gtt ttt aaa tta gaa gat	2784
207	Ser Thr Lys Tyr Thr Lys Glu Thr Pro Phe Val Phe Lys Leu Glu Asp	
208	915 920 925	
209	tac caa gat gcc gtt atc att cca aga tat cgc aat ttt gat cag cct	2832
210	Tyr Gln Asp Ala Val Ile Ile Pro Arg Tyr Arg Asn Phe Asp Gln Pro	
211	930 935 940	
212	cat cga ttt tat gta gct gat gtg tac act gat ctt acc cca ctc agt	2880
213	His Arg Phe Tyr Val Ala Asp Val Tyr Thr Asp Leu Thr Pro Leu Ser	
214	945 950 955 960	
215	aaa ttt cct tcc cct gag tat gaa act ttt gca gaa tat tat aaa aca	2928
216	Lys Phe Pro Ser Pro Glu Tyr Glu Thr Phe Ala Glu Tyr Tyr Lys Thr	
217	965 970 975	
218	aag tac aac ctt gac cta acc aat ctc aac cag cca ctg ctg gat gtg	2976
219	Lys Tyr Asn Leu Asp Leu Thr Asn Leu Asn Gln Pro Leu Leu Asp Val	
220	980 985 990	
221	gac cac aca tct tca aga ctt aat ctt ttg aca cct cga cat ttg aat	3024
222	Asp His Thr Ser Ser Arg Leu Asn Leu Leu Thr Pro Arg His Leu Asn	
223	995 1000 1005	
224	cag aag ggg aaa gcg ctt cct tta agc agt gct gag aag agg aaa	3069
225	Gln Lys Gly Lys Ala Leu Pro Leu Ser Ser Ala Glu Lys Arg Lys	
226	1010 1015 1020	
227	gcc aaa tgg gaa agt ctg cag aat aaa cag ata ctg gtt cca gaa	3114
228	Ala Lys Trp Glu Ser Leu Gln Asn Lys Gln Ile Leu Val Pro Glu	
229	1025 1030 1035	
230	ctc tgt gct ata cat cca att cca gca tca ctg tgg aga aaa gct	3159
231	Leu Cys Ala Ile His Pro Ile Pro Ala Ser Leu Trp Arg Lys Ala	
232	1040 1045 1050	
233	gtt tgt ctc ccc agc ata ctt tat cgc ctt cac tgc ctt ttg act	3204
234	Val Cys Leu Pro Ser Ile Leu Tyr Arg Leu His Cys Leu Leu Thr	
235	1055 1060 1065	
236	gca gag gag cta aga gcc cag act gcc agc gat gct ggc gtg gga	3249
237	Ala Glu Glu Leu Arg Ala Gln Thr Ala Ser Asp Ala Gly Val Gly	
238	1070 1075 1080	
239	gtc aga tca ctt cct gcg gat ttt aga tac cct aac tta gac ttc	3294
240	Val Arg Ser Leu Pro Ala Asp Phe Arg Tyr Pro Asn Leu Asp Phe	
241	1085 1090 1095	
242	ggg tgg aaa aaa tct att gac agc aaa tct ttc atc tca att tct	3339
243	Gly Trp Lys Lys Ser Ile Asp Ser Lys Ser Phe Ile Ser Ile Ser	
244	1100 1105 1110	
245	aac tcc tct tca gct gaa aat gat aat tac tgt aag cac agc aca	3384
246	Asn Ser Ser Ser Ala Glu Asn Asp Asn Tyr Cys Lys His Ser Thr	
247	1115 1120 1125	
248	att gtc cct gaa aat gct gca cat caa ggt gct aat aga acc tcc	3429
249	Ile Val Pro Glu Asn Ala Ala His Gln Gly Ala Asn Arg Thr Ser	
250	1130 1135 1140	
251	tct cta gaa aat cat gac caa atg tct gtg aac tgc aga acg ttg	3474

VERIFICATION SUMMARY

PATENT APPLICATION: US/09/866,557A

DATE: 04/08/2002

TIME: 15:45:42

Input Set : A:\GNCA-P02-007.txt

Output Set: N:\CRF3\04082002\I866557A.raw

L:12 M:271 C: Current Filing Date differs, Replaced Current Filing Date